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ABSTRACT

The purpose of this discussion is to identify and to describe current models of reading comprehension in order to draw conclusions regarding their application to classroom teaching. The models are categorized according to the different approaches to comprehension: "Behavior Models" are concerned with determining behavioral outcomes for teaching comprehension; "Cognitive-Based Models" are concerned with explaining cognitive operations underlying comprehension; "Relational Models" explain comprehension by relating specific skills to postulated underlying cognitive operations; "Information-Processing Models" explain comprehension in terms of the dynamic interaction between incoming information and the cognitive processing of this information; and "Psycholinguistic Models" discuss comprehension in terms of psychological and linguistic theory. It was concluded that the traditional approach of teaching comprehension as a series of skills separately defined, sequentially developed, and generally applicable in all reading situations is in error. The models suggest that comprehension is a multidimensional process, that the performance of skills is an outer manifestation of a complex inner process; and that comprehension varies with the task and should be taught as a cognitive process. (RB)

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Classroom Implications from Models of Reading Comprehension

Preconvention Institute XIV

Classroom Implications from Reading Related Cognitive and Affective Research

The ultimate objective for teaching reading is that pupils understand what they read. The extent of a pupil's success in reading is determined by the degree to which he understands the meaning intended by the writer. This understanding is usually referred to as comprehension.

Despite the importance of comprehension, it remains one of the least understood aspects of reading. Currently, the teaching of comprehension is almost exclusively based on the S-R paradigm. Skills are defined, taught, and measured, yet the covert learning process involved in developing comprehension receives little attention. This situation is partly due to the fact that research and non-research investigations of comprehension are inconsistent

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and highly equivocal in their conclusions. One is forced to agree with Jenkinson (14) who has recently commented that "our ignorance of reading comprehension is pervasive and abysmal."

A relatively new approach to understanding comprehension has been the development of models of comprehension (10, 20). Beginning with Holmes' (12) substrata factor model, recent years have witnessed the appearance of an increasing number of models of comprehension. While the avowed intention of many model builders has been to facilitate research into the nature of comprehension (9), one would hope that these models could also suggest effective methods for teaching comprehension. The purpose of this discussion is to identify and to describe current models of comprehension in order to draw some conclusions regarding their application to classroom teaching.

Categories of Models

An immediate problem in developing an overview of comprehension models is that model builders differ in their conceptualizations of comprehension. Some models conceive comprehension in terms of the behaviors to be taught and the educational outcomes to serve as the foci of instruction (1, 7, 17). Other models are concerned with explaining cognitive operations associated with comprehension (4, 23). Still others approach comprehension by relating skills to cognitive operations (21, 22), while others describe comprehension in terms of information processing (3, 13, 15, 16, 19). A recent

approach has been through psycholinguistic models (2, 6, 17, 23).

In this discussion, models will be categorized according to the different approaches to comprehension which they demonstrate in order to assess the utility of each approach for classroom instruction.

Behavioral Models

The models of Gray and Robinson (7, 17) and Barrett (1) fall within this category. These models are primarily concerned with determining behavioral outcomes for teaching comprehension. In considering comprehension as one of "the major aspects of reading," Gray and Robinson include three components of comprehension: "grasping literal meaning," "securing an expanded grasp of the meaning," and "understanding ideas read." Similarly, Barrett includes Literal Comprehension, Inferential Comprehension, Evaluation, and Appreciation within his model. In addition, both models outline specific skills which they claim are exercised by comprehending readers. However, neither model is concerned with the cognitive operations which presumably underlie the performance of these skills. Robinson emphasizes this point when she states that the intent of her model is "to distinguish between <u>what</u> we are trying to achieve and the <u>processes</u> for achieving our goals." She is careful to note that "models of the reading process and of procedures for teaching reading have been omitted."

Cognitive-Based Models

In contrast with the behavioral emphasis of the Gray-Robinson

and the Barrett models, the models of Cleland (4) and Stauffer (23) are exclusively concerned with explaining cognitive operations underlying comprehension. Cleland defines comprehension as "a central mental activity involving the higher intellectual processes." He describes these processes as Perception, Apperception, Abstraction, Appraisal, Ideation, and Application. Similarly, Stauffer states that "reading is a complex phenomenon of mental activity akin to thinking," and that "to read is to comprehend what is read." He maintains that comprehension results from a cognitive process which involves "declaring purposes," "reasoning while reading," and "judging." Neither model indicates what overt behaviors may be taken as evidence of the successful execution of these cognitive operations.

Relational Models

The models of Smith (21) and Spache (22) seek to explain comprehension by relating specific skills to postulated underlying cognitive operations. Both models adopt the Semantic Content dimension of Guilford's (8) structure of intellect model for this purpose. While Smith deletes some components from the Guilford model, claiming that they are not all directly applicable to comprehension, both models propose relationships between Guilford's cognitive operations and specific skills by which these operations are "exemplified in various reading behaviors" (22).

Information-Processing Models

A wide variety of models is included in this category. Despite

this variety, these models are alike in that they all attempt to explain comprehension in terms of the dynamic interaction between incoming information and the cognitive processing of this information.

Carver (3) conceives "the written verbal material which the human processes during reading" to be analogous to the information input of a computer. McCullough (16) views incoming verbal information in terms of a "schema of thought patterns" active in the mind of the writer and transmitted to the mind of the reader during reading. Similarly, Kingston (15) maintains that comprehension can best be understood "as a product of communication that results from interaction between the reader and the writer." Rystrom (19) explains the first stage of comprehension as the inputting of information which is decoded in the brain of the reader. Holmes and Singer (13) hypothesize that the information input during reading can be described as "coded audio-visual and kinesthetic impressions derived from the description of concrete objects."

The processing of this information is described by Carver in terms of computer data manipulation and storage resulting in "the understanding of the thoughts that the writer intended to communicate." Comprehension takes place in McCullough's model as a result of the reader's mind moving freely through her schema of thought patterns while employing inductive, deductive, convergent, divergent, and evaluative thinking. Kingston's model represents comprehension as resulting from the favorable influence of linguistic factors, reading skills, and psychological factors. Rystrom conceives

information processing to involve vocabulary, syntax, item recall, item sequence, and evaluation. In the Holmes and Singer model, comprehension derives from the processing of information within a "working system" which Holmes describes as follows:

> ...as a result of the heightened cerebral activity engendered by increased concentration, conceptual abstractions are wrought by the process of comparing and contrasting the incoming information with relevant information already stored from past experiences....(13)

In all of these models, comprehension is conceived to be an entirely covert process having, in Carver's words, "no explicit output step." The behaviorist approach is therefore rejected as being an artificial representation of comprehension.

Psycholinguistic Models

Psycholinguistic models are characterized by the combination of psychological and linguistic theory in an attempt to explain comprehension. One feature of the psycholinguistic models is their linking of perception with cognition during the process of comprehension. Goodman maintains that comprehension results from "a series of tentative decisions made on the basis of partial use of available language cues" (5). As the reader progresses through a reading passage, he selects the correct meaning from various possible alternative meanings. This selection process is accomplished by means of visual scanning involving the use of different semantic and syntactic cues. Hence, Goodman describes

comprehension as "a psycholinguistic guessing game":

> It involves partial use of available minimal language cues selected from perceptual input on the basis of the reader's expectation. As this partial information is processed, tentative decisions are made to be confirmed, rejected, or refined as reading progresses. (6)

The models of Venezky and Calfee (24) and Brown (2) describe comprehension in a manner generally similar to Goodman. Ruddell (18) also describes comprehension through a psycholinguistic model. However, in remaining exclusively concerned with language processing, Ruddell does not account for visual scanning. He describes reading as:

> ...a complex psycholinguistic behavior which consists of decoding written language units, processing the resulting language counterparts through structural and semantic dimensions, and interpreting the deep structure data relative to an individual's established objectives.(18)

Implications for Teaching

No model of comprehension is specifically concerned with methods for teaching comprehension nor does any present a developmental scheme describing how pupils learn to comprehend. The Gray-Robinson and the Barrett models are concerned with delineating desired outcomes for teaching comprehension, and the skills listed by Smith and Spache are intended to serve as objectives for instruction. But none of these models describes

methods for realizing these objectives. Cognitive-Based Models, Information-Processing Models, and Psycholinguistic Models all focus on the cognitive processes which presumably underlie comprehension. By adding linguistic considerations, Psycholinguistic Models compound the complexity of the cognitive process they describe without suggesting ways by which it can be taught.

Despite these restrictions, models of comprehension do contain implications for teaching. The basic implication is that the traditional notion of teaching comprehension as a series of skills separately defined, sequentially developed, and generally applicable in any and all reading situations is in error. Models of comprehension clearly suggest that comprehension is a multi-dimensional process involving the cognitive processing of language. The performance of skills is merely the outer manifestation of this extremely complex inner process. The manner in which skills are applied to various comprehension tasks in different learning situations will vary as often as do the tasks and situations themselves. Comprehension is essentially a cognitive process and should be taught as such. Rather than teaching pupils to practice skills in a vacuum, it is more sensible to teach them how to think while selectively applying these skills to specific comprehension tasks (11).

Models suggest the teaching of a wide variety of thinking activities to promote pupil growth in comprehension. The Cognitive-Based Models and particularly the Information-Processing Models clearly indicate the need to develop variety and flexibility in pupils' thinking while reading. Analysis, synthesis, expectancy,

and retrospection are some of the cognitive processes which models indicate are involved in comprehension. Teachers are obliged to actively teach these abilities rather than to assume that they will develop automatically as concomitants of the isolated teaching and practice of skills. In addition, the Psycholinguistic Models point to the importance of language and the use of language cues in comprehension. From these models, teachers can see the need to view the teaching of comprehension within the context of language learning and concept development.

Although models of comprehension may be deficient from the teacher's point of view in their failure to explicitly set out procedures for teaching comprehension, they do provide general principles for effective teaching. It is therefore possible to extrapolate from models to develop more effective instructional strategies for teaching comprehension.

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